

CLAIM

1. A device for receiving and discharging fluids comprising:
- 5
- a.) a first housing having a at least one side wall, said side wall having an interior surface defining at least one chamber, and having at least one end cap abutment surface for receiving an end cap;
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- b.) at least one end cap, said end cap having at least one first housing abutment surface and said first housing abutment surface positioned on said end cap abutment surface for enclosing said chamber;
- c.) a first seal coating on at least one of said first housing abutment surface and said
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- end cap abutment surface, said first seal coating comprising a deformable plastic adhering said abutment surface;
- d.) fluid path means for receiving and removing fluid from said chamber; and
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- e.) compression means to compress said end cap, with said end cap abutment surface received on said first housing abutment surface, towards said first housing to deform said first seal coating and seal said chamber.
2. The device of claim 1 wherein said seal coating is selected from one or more of the polymeric coating consisting of polytrifluoroethylene (PTFE), polyetheretherketone
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- (PEEK), polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy (PFA) and fluorinatedethylenepropylene (FEP).
3. The device of claim 1 wherein at least one of said end cap abutment surface and said housing abutment surface is a ridge to localize compression forces on said seal coating.
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4. The device of claim 1 wherein said at least one chamber contains a valve assembly.

5. The device of claim 4 wherein said housing has at least one end wall opposite said end cap and said fluid path means comprises at least one opening in said end cap and at least one opening in said end wall.
6. The device of claim 5 wherein said valve assembly comprises a ball seat and a
5 ball.
7. The device of claim 6 wherein at least one of said interior wall and said end cap has an ball seat abutment surface, said ball seat comprising a cylinder having a two rims, and fluid passage, at least one of said rims having a ball receiving surface for engaging said ball and closing the fluid passage and at least one of said rims having a
10 rim abutment surface for engaging said ball seat abutment surface and sealing the ball seat and at least one of said housing and end cap.
8. The device of claim 7 wherein at least one of said ball seat abutment surface and rim abutment surface has a ball seat seal coating.
9. The device of claim 8 wherein said ball seat seal coating is selected from one or
15 more of the polymeric coating consisting of polytrifluoroethylene (PTFE), polyetheretherketone (PEEK), polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy (PFA) and fluorinatedethylenepropylene (FEP).
10. The device of claim 5 wherein said end wall has an interior surface and an exterior surface, said end wall having one or more end wall openings and said exterior
20 surface having an end wall abutment surface encircling said one or more end wall openings.
11. The device of claim 10 wherein said end wall abutment surface has a end wall seal coating, said end wall seal coating comprising a deformable plastic to sealably engage an adjoining wall.
- 25 12. The device of claim 11 wherein said end wall seal coating is selected from one or more of the polymeric coating consisting of polytrifluoroethylene (PTFE), polyetheretherketone (PEEK), polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy (PFA) and fluorinatedethylenepropylene (FEP).

13. The device of claim 13 wherein said compression means comprises an adjoining wall for receiving said end wall and compressing said end wall seal coating in sealing engagement.
14. The device of claim 13 wherein said adjoining wall has a adjoining wall opening
5 for the passage of fluid into said end wall opening.
15. The device of claim 14 wherein said compression means comprises a major housing assembly comprising a major housing and compression sleeve, said major housing having a first housing chamber for receiving said first housing, and said compression sleeve for engaging said end cap for placing said end cap, and first
10 housing under compression.
16. The device of claim 15 wherein said major housing assembly has a compression nut means, said compression nut means and major housing having cooperating threads which engage upon rotation of the compression nut means and major housing, said compression nut means engaging said compression sleeve to compress said
15 compression sleeve, end cap and first housing within said major housing chamber.
17. A method of joining a fluid conduits comprising the steps of providing a device having:
- 20 a.) a first housing having a at least one side wall, said side wall having an interior surface defining at least one chamber, and having at least one end cap abutment surface for receiving an end cap;
- b.) at least one end cap, said end cap having at least one first housing abutment
25 surface and said first housing abutment surface positioned on said end cap abutment surface for enclosing said chamber;
- c.) a first seal coating on at least one of said first housing abutment surface and said end cap abutment surface, said first seal coating comprising a deformable plastic
30 adhering said abutment surface;

d.) fluid path means for receiving and removing fluid from said chamber; and

e.) compression means to compress said end cap, with said end cap abutment surface received on said first housing abutment surface, towards said first housing to deform

5 said first seal coating and seal said chamber; and,

placing said receiving conduit and discharge conduits in communication with said fluid path means.

10 18. The method of claim 17 wherein said seal coating is selected from one or more of the polymeric coating consisting of polytrifluoroethylene (PTFE), polyetheretherketone (PEEK), polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy (PFA) and fluorinatedethylenepropylene (FEP).

15 19. The method of claim 18 wherein at least one of said end cap abutment surface and said housing abutment surface is a ridge to localize compression forces on said seal coating.

20. The method of claim 17 wherein said at least one chamber contains a valve assembly.

20 21. The method of claim 20 wherein said housing has at least one end wall opposite said end cap and said fluid path means comprises at least one opening in said end cap and at least one opening in said end wall.

22. The method of claim 21 wherein said check valve assembly comprises a ball seat and a ball.

25 23. The method of claim 22 wherein at least one of said interior wall and said end cap has an ball seat abutment surface, said ball seat comprising a cylinder having a two rims, and fluid passage, at least one of said rims having a ball receiving surface for engaging said ball and closing the fluid passage and at least one of said rims having a rim abutment surface for engaging said ball seat abutment surface and sealing the ball seat and at least one of said housing and end cap.

24. The method of claim 23 wherein at least one of said ball seat abutment surface and rim abutment surface has a ball seat seal coating.
25. The method of claim 24 wherein said ball seat seal coating is selected from one or more of the polymeric coating consisting of polytrifluoroethylene (PTFE),
5 polyetheretherketone (PEEK), polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy (PFA) and fluorinatedethylenepropylene (FEP).
26. The method of claim 25 wherein said end wall has an interior surface and an exterior surface, said end wall having one or more end wall openings and said exterior surface having an end wall abutment surface encircling said one or more end wall
10 openings.
27. The method of claim 26 wherein said end wall abutment surface has a end wall seal coating, said end wall seal coating comprising a deformable plastic to sealably engage an adjoining wall.
28. The method of claim 27 wherein said end wall seal coating is selected from one
15 or more of the polymeric coating consisting of polytrifluoroethylene (PTFE), polyetheretherketone (PEEK), polychlorotrifluoroethylene (PCTFE), perfluoroalkoxy (PFA) and fluorinatedethylenepropylene (FEP).
29. The method of claim 28 wherein said compression means comprises an adjoining wall for receiving said end wall and compressing said end wall seal coating in sealing
20 engagement.
30. The method of claim 29 wherein said adjoining wall has a adjoining wall opening for the passage of fluid into said end wall opening.
31. The method of claim 30 wherein said compression means comprises a major housing assembly comprising a major housing and compression sleeve, said major
25 housing having a first housing chamber for receiving said first housing, and said compression sleeve for engaging said end cap for placing said end cap, and first housing under compression.

32. The method of claim 31 wherein said major housing assembly has a compression nut means, said compression nut means and major housing having cooperating threads which engage upon rotation of the compression nut means and major housing, said compression nut means engaging said compression sleeve to compress said
- 5 compression sleeve, end cap and first housing within said major housing chamber.